What is claimed is:

1. A method of forming an injection molded plastic part in a mold, comprising:

sealing the mold to prevent gas leakage from the mold cavity;

applying an initial gas pressure in the mold cavity;

injecting plastic material into the mold cavity;

increasing the gas pressure in the mold cavity up to a preselected value;

injecting gas into the plastic material after 90%-99% of the preselected amount of plastic material has entered the mold cavity;

venting the gas from the mold cavity at a controlled rate;

allowing the plastic material to harden forming a hollow molded article;

venting the gas from the hollow molded article; and

removing the completed plastic article from the mold.

2. The method of forming an injection molded plastic part as recited in claim 1 wherein the initial gas pressure is supplied from a first gas source and said injection of gas is supplied from a second gas source.

3. The method of forming an injection molded plastic part as recited in claim 2 wherein the first and second gas sources are the same.

4. The method of forming an injection molded plastic part as recited in claim 1 wherein the step of removing the completed plastic part from the mold comprises opening the mold and ejecting the part.

5. The method of forming an injection molded plastic part as recited in claim 4 wherein the part is ejected from the mold by at least one ejector pin assembly.

6. The method of forming an injection molded plastic part as recited in claim 1 wherein the gas is injected into the plastic material by at least one gas pin assembly.

7. The method of forming an injection molded plastic part as recited in claim 1 wherein the gas pressure in the mold cavity is maintained at a pre-selected value by a gas control mechanism.

8. The method of forming an injection molded plastic part as recited in claim 7 wherein said gas control mechanism is infinitely adjustable.

9. The method of forming an injection molded plastic part as recited in claim 1 further comprising the step of venting the injected gas from the plastic material before the part is removed from the mold.

10. The method of forming an injection molded plastic part as recited in claim 9 wherein the injected gas is vented through a gas pin assembly.

11. The method of forming an injection molded plastic part as recited in claim 7 wherein said gas control mechanism comprises a vent valve.

12. A system for forming an injection molded plastic part in a mold comprising:

a mold, said mold having a part-forming mold cavity therein;

sealing members for sealing said mold cavity and preventing gas leakage therefrom;

a first gas source for supplying a gas into the mold cavity to pre-pressurize the mold cavity to a first pre-determined value;

a vent valve for removing said gas from the mold cavity as desired;

a gas control mechanism for maintaining the gas pressure in the mold cavity at a second pre-determined value;

a source for injecting molten plastic material into the mold cavity;

a gas pin assembly for supplying gas into the plastic material in the mold cavity; and

a second gas source for supplying gas to said gas pin assembly.

13. The system as recited in claim 12 further comprising:

at least one ejector pin assembly for ejecting the completed plastic part from the mold cavity.

14. The system as recited in claim 12 wherein said first and second gas source are the same source.

15. The system as recited in claim 12 wherein said gas control mechanism comprises an infinitely adjustable gas control valve.